FIRST InP/InGaAs PNP HBT GROWN BY METAL ORGANIC CHEMICAL VAPOR DEPOSITION

Delong Cui, Shawn Hsu and Dimitris Pavlidis
Department of Electrical Engineering and Computer Science, The University of Michigan, Ann Arbor, MI 48104, USA
Phone: 1-734-647-1778, Fax: 1-734-763-9324, E-mail: pavlidis@umich.edu

Abstract

The MOCVD growth of InP/InGaAs PNP HBT layers and the successful fabrication and operation at high frequency of devices made on such layers are reported for the first time. The PNP HBTs employed a zinc-doped InP layer as emitter while the base was made with a 500Å thick n-type InGaAs layer doped at $5\times10^{18}cm^{-3}$. Microwave measurements indicated f_T of more than 11 GHz at $J_C=8.25\times10^4$ A/cm^2 for these MOCVD-grown InP/InGaAs PNP HBTs.